

Freshwater Quality Monitoring Protocol
San Francisco Area Network

Standard Operating Procedure (SOP) # 11

DATA REPORTING

Version 1.01

August 2005

REVISION HISTORY LOG

Prev. Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #
1.0	8/5/05	M. Cooprider	Minor edits	Preparation for formal peer review	1.01

Only changes in this SOP will be logged. “Version numbers increase incrementally by hundredths (e.g. version 1.01, version 1.02, ...etc) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0 ...). Record the previous version number, date of revision, author of the revision, identify paragraphs and pages where changes are made, and the reason for making the changes along with the new version number” (Peitz et al, 2002).

Suggested Citation: Cooprider, MA. 2005. Data Reporting, Version 1.0, Standard Operating Procedure #10. *In* San Francisco Area Network Freshwater Quality Monitoring Protocol, Version 2.01, Appendix H-SOPs, National Park Service, San Francisco Bay Area Network, CA. 51 pp. Plus appendices.

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1.0 INTRODUCTION

Clear, concise, and consistent reporting of monitoring results is essential to the SFAN Water Quality Monitoring Program and is a primary form of information dissemination between the I&M program and the parks. This SOP is adapted from SOP #11 in *Fish Community Monitoring in Prairie Park Streams with Emphasis on the Topeka Shiner (Notropis Topeka)* (Peitz and Rowell, 2004).

A requirement for WRD, is to provide a report that includes a paragraph summary for each parameter plus summary graphs of each site. The report is submitted with a copy of NPSTORET updated with the data from the past year. In addition, summary paragraphs will be provided for each watershed including any proposed management activities related to water quality improvements. Recommendations for revising the protocol (changing monitoring intervals and timing, moving/adding sites, etc.) will also be proposed. These annual reports will also be provided to the SFAN parks.

Several types of reports are discussed in the SFAN Data Management Plan; at least three of these will be used by the freshwater quality monitoring program. These reports and their purposes are listed below (from Press, 2005):

Annual Report (proposed completion date December 2006 for Water Year 2006):

- Archive old data and document monitoring activities
- Describe current condition of the resources
- Document changes in the monitoring protocol
- Increase communication within the park and network

Analysis and Synthesis Report (every 3-5 years for 2-4 years of data)

- Determine patterns and trends
- Discover correlations among resources being monitored
- Analyze data to determine the level of change that can be detected using the existing sampling scheme
- Provide context, interpret data for the park within a multi-park, regional, or national context
- Recommend changes to management practices

Program and Protocol Reviews

- Periodic formal reviews of operations and results
- Review of protocol design and product to determine if changes are needed
- Part of the quality assurance – peer review process

A comprehensive data analysis and synthesis will be written every few years in addition to more simplified, general annual summaries. Having this extra time allows for more thorough data analysis and review of protocols and may give greater opportunity for adaptive management.

In addition to data reports, a quality assurance should also be produced every few years to explain the results of data completeness and other QA/QC issues. See the Quality Assurance Project Plan (SOP #4) for more details.

2.0 REPORT FORMAT

Reports should be standardized with other I&M reports but will generally be written in 12 point Times New Roman text. Tables, figures, and photographs are encouraged to present data and site conditions. The following is the suggested outline by Peitz and Rowell (2004):

TITLE PAGE

- Title
- Author(s)
- Institutions
- Prepared for
- Date

TABLE OF CONTENT PAGE (optional)

EXECUTIVE SUMMARY PAGE (abstract)

1.0 INTRODUCTION

- 1.1 Background
- 1.2 Justification for Study
- 1.3 Objectives

2.0 METHODS

- 2.1 Study area(s)
- 2.2 Field method(s)
- 2.3 Analytical method(s)

3.0 RESULTS

4.0 DISCUSSION

5.0 MANAGEMENT IMPLICATIONS

6.0 ACKNOWLEDGEMENTS

7.0 LITERATURE CITED

3.0 REVIEW PROCEDURE

3.1 Internal Review

One or more editorial reviews should be sought before submitting the report for review by staff in the park(s) where monitoring occurred and before external review. Internal review by person(s) skilled in technical writing for clarity and directness should fulfill this review requirement. Internal reviews will be conducted by the SFAN Aquatics Group or other SFAN staff or individuals known to be skilled in writing and editing.

If reports are written to update findings only and they do not deviate significantly from previously reviewed and distributed reports than the review process may stop here. However, review by park staff and subsequent external reviews must be sought for new reports or those that deviate significantly from previously reviewed and distributed reports. Also, if management activities within a park are not clearly understood than park review should be sought for a report to clarify results and management implications.

3.2 Park Review

Park staff, generally the Resource Managers are in a unique position since they can supply details about management activities that may influence findings presented in a report. Also, they will most likely be directly involved in applying management recommendations to their respective parks. Therefore, review by park staff is vital to the interpretation of findings and the assessment of proposed management implications. Review by park staff should be conducted before a report is submitted for external review.

3.3 External Review

External review by two or more experts in water quality monitoring should be sought for the first report in a series of annual reports. In addition, analytical methods employed on data presented in the report need to be reviewed by one or more statisticians. If a report updates a previously reviewed and distributed report than external review is not required. However, external reviews must be sought for new reports or those that deviate significantly from previously reviewed and distributed reports. In order to conserve reviewer time, external reviews must follow the internal and park review process.

4.0 DISTRIBUTION PROCEDURE

4.1 Identifying Stakeholders

The primary stakeholders in our Water Quality Monitoring efforts are park staff. Additional stakeholders include the SFAN I&M program and the San Francisco Bay Regional Water Quality Control Board. Other potential stakeholders include any of the national water quality monitoring programs, universities and the general public.

4.2 Distributing the Report

Reports will be provided to the respective parks where water quality monitoring was conducted. Additionally, a copy will be kept on file with the SFAN office of the National Park Service, Sausalito, California and made available to all interested parties upon request.

All data collected by the SFAN is public property and is subject to requests under the Freedom of Information Act (FOIA). The data management plan for Channel Island National Park (Dye 1998) describes appropriate procedures to respond to FOIA requests, including the protection of sensitive data such as endangered species locations. In the future, reports containing non-sensitive data will be disseminated through a website. Through the website, those requesting data will be asked to provide information to document by whom and for what purpose the report is being used. By documenting requests, users can be informed when updated reports are available. Users requesting paper copies will be documented also.

5.0 REFERENCES

Dye, L. C. 1998. Data management plan: Channel Island National Park. National Park Service Technical Report 98-04.

Peitz, D.G., S. G. Fancy, L. P. Thomas, and B. Witcher. 2002. Bird monitoring protocol for Agate Fossil Beds National Monument, Nebraska and Tallgrass Prairie National Preserve, Kansas. Prairie Cluster prototype monitoring program. Version 1.00, September 6, 2002.

Peitz DG, Rowell GA. 2004. Fish community monitoring in prairie park streams with emphasis on Topeka Shiner (*Notropis Topeka*). Prepared for: Prairie Cluster Prototype Long-Term Ecological Monitoring Program. Version 1.00 (February 2, 2004).

Press, D. 2005. DRAFT San Francisco Bay Area Network Data Management Plan *In* Appendix 7 of the SFAN Draft Phase III Vital Signs Monitoring Plan. U.S. Department of Interior, National Park Service.